Closed Circuit Television (CCTV) Inspection and Evaluation Services

CCTV inspection and evaluation services are available for toe drains, relief wells, outlet works/spillway conduits, pipelines, penstocks, siphons, and gates/valves. CCTV inspection is also used to avoid human entry into confined areas requiring Occupational Safety and Health Administration (OSHA) permit such as gate towers, vaults, etc. CCTV inspection utilizes state-of-the-art robotic crawlers and cameras with real-time imaging for inspection.

CCTV inspection and evaluation services include: inspection, technical assessment of observed conditions, preparation of a Report of Findings, and color copies of inspection videotapes. The Report of Findings documents any problem areas observed and provides recommendations for future actions, such as cleaning, maintenance, or repair.

Typical CCTV Inspection Equipment and Capabilities

Equipment	Pipe diameter (inches)	Inspection uses	Maximum tether (feet)[1]
VersaTrax - Parallel System (see Figure 1)	15 and up	For toe drains, relief wells, outlet works/spillway conduits, pipelines, penstocks, siphons, and gates/valves.	1,000
VersaTrax - Inline System (see Figure 2)	6 to 14	For toe drains, relief wells, outlet works/spillway conduits, pipelines, penstocks, siphons, and gates/valves.	1,000
Subseas video camera attached to loading poles (see Figure 3)	2 and up	For short reaches of toe drains, outlet works/spillway conduits, pipelines, penstocks, siphons, or where obstructions may prevent the use of a VersaTrax camera-crawler. Also can be used in gate towers and vaults.	400
Subseas video camera attached to coiled wire snake (see Figure 4)	2 and up	For short reaches of toe drains, outlet works/spillway conduits, pipelines, penstocks, and siphons or where bends or obstructions may prevent the use of a VersaTrax camera-crawler. Also, can also be used in gate towers and vaults.	200

[1] The type of pipe material, invert conditions, bend angles, and invert slope inclination will affect the tether actually obtainable by the VersaTrax camera-crawler equipment. The maximum tether shown in the table is based upon the Bureau of Reclamation's tests conducted within HDPE pipe that was dry and had no bends or no slope inclination. Tether capabilities within other pipe materials such as concrete, clay tile, steel, or PVC should be similar.

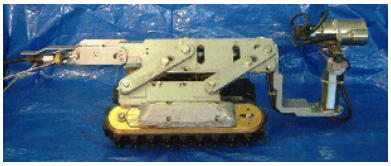

Figure 1 - VersaTrax Parallel System

Figure 2 - VersaTrax Inline System

Figure 3 - Subseas video camera

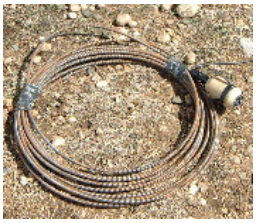

Figure 4 - Subseas video camera with coiled wire snake

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